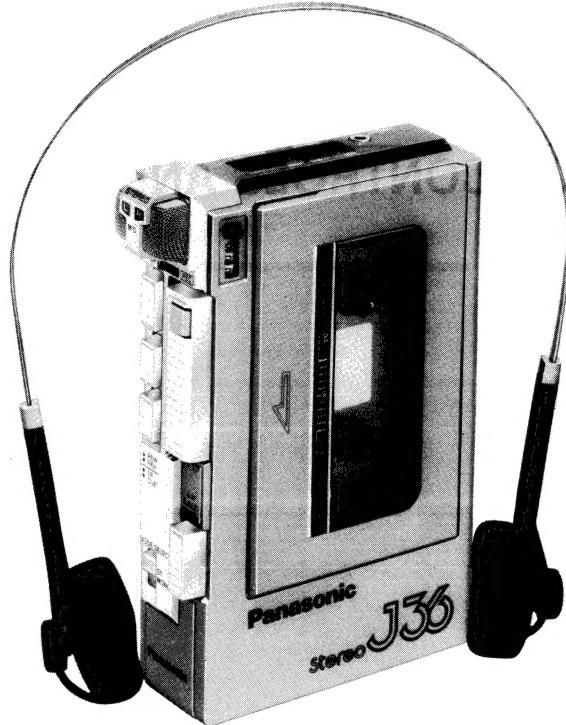


# Service Manual

Stereo Mini Cassette Recorder/Player

Mini Cassette  
**RQ-J36**  
 (Silver)



This is the Service Manual for the following areas.

..... For all European areas.

## RQ-335 MECHANISM SERIES

### Specifications

Power requirement:	Battery; 6V (four "R6" size dry batteries) Car battery; with optional car/boat adaptor RP-917
Motor:	Electrical governor motor
Frequency range:	70—10,000 Hz
Track system:	4-track 2-channel stereo recording and playback Stereo playback with stereo headphones
Tape speed:	4.8 cm/s
Fast forward and rewind time:	Approx. 150 seconds with C-60 cassette tape
Inputs:	MIC; sensitivity 0.25 mV, applicable microphone impedance 200Ω—600Ω DC in; 6V
Output:	HEADPHONES; output level 560 mV over (at 16Ω)
Heads:	1 super permalloy head for record/playback 1 erase head
Dimensions:	95.5mm(W) × 147.5mm(H) × 36.0mm(D)
Weight:	440 g, without batteries

Specifications are subject to change without notice.

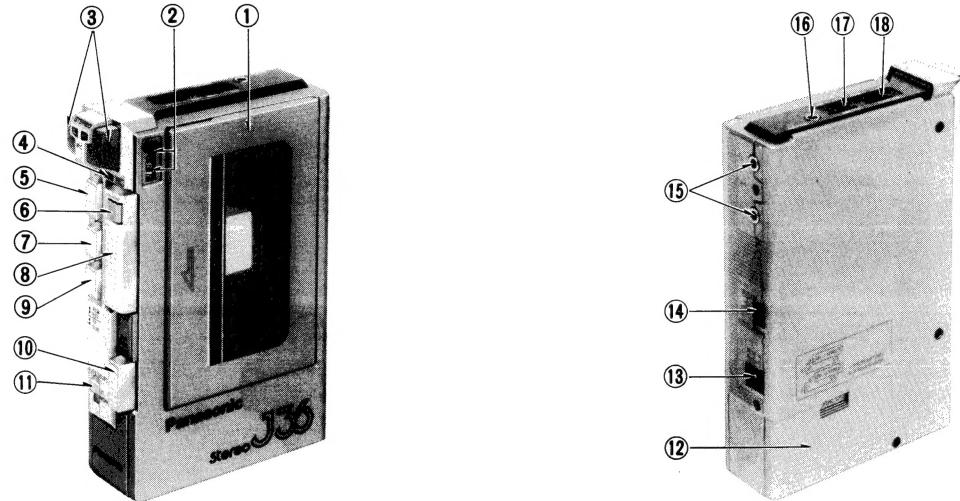
# Panasonic

**Matsushita Electric Trading Co., Ltd.**  
P.O. Box 288, Central Osaka Japan

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## LOCATION OF CONTROLS AND COMPONENTS



- ① Cassette compartment cover
- ② Tape counter and reset button
- ③ Built-in microphone
- ④ Battery-check lamp
- ⑤ Stop button
- ⑥ Record button
- ⑦ Rewind/review button
- ⑧ Playback button
- ⑨ Fast forward/cue button

- ⑩ Eject/pause button
- ⑪ Stereo/mono select switch
- ⑫ Battery cover
- ⑬ DC IN jack
- ⑭ Playback equalizer/tone control switch
- ⑮ Microphone jack
- ⑯ Headphones jack
- ⑰ Volume control
- ⑱ Valance volume control

## DISASSEMBLY INSTRUCTION

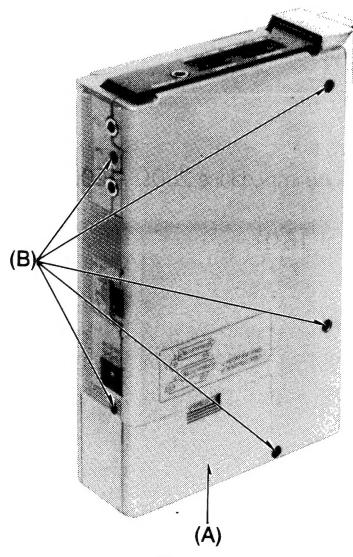


Fig. 1

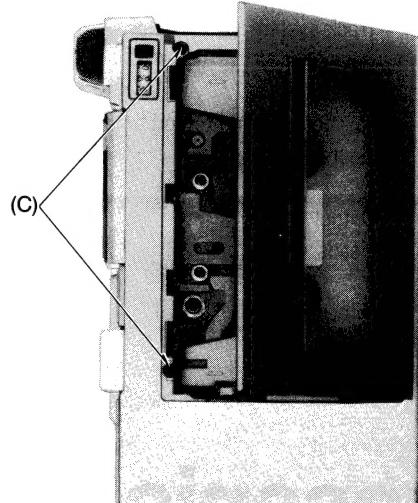


Fig. 2

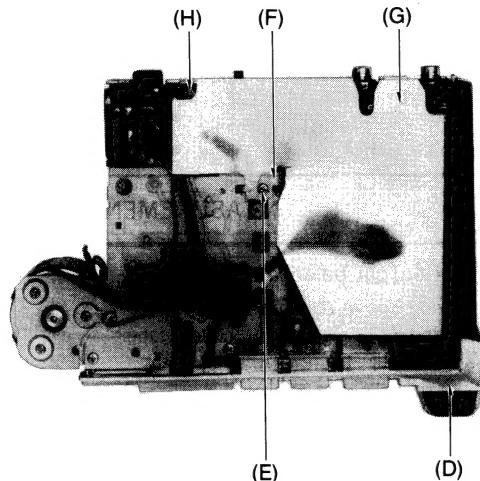


Fig. 3

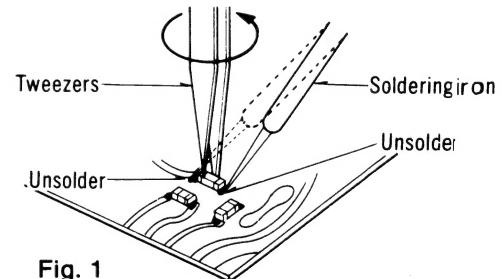
Ref. No.	Procedure	To remove —— .	Remove —— .	Shown in fig. —— .
1	1	Bottom case assembly	• Battery cover ..... (A) • 5 black screws ..... (B)	1 1
2	1→2	Main case assembly and jack board assembly	• 2 black screws ..... (C)	2
3	1→2→3	Main circuit board	• Front panel ..... (D) • 1 screw ..... (E) • P.B. holding angle ..... (F) • Shield plate ..... (G) • 1 screw ..... (H)	3 3 3 3 3

## CHIP PARTS REPAIR PROCEDURE

(transistor, diode, resistor and capacitor, etc.)

### A. Removal

1. Remove all solder from both ends of chip using a solder sucker (RP8062) or desoldering wick.
2. While the chip is hot remove it by turning with tweezers as shown in fig. 1.  
\* Make sure that the unit is turned OFF when checking the resistance and polarity of a chip.

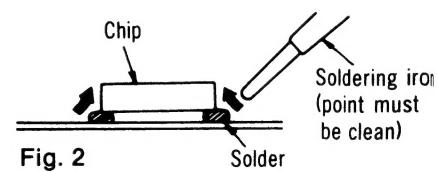


### B. Mounting

Place solder on the foil chip mounting, and solder the chip while applying the soldering iron in the direction of the arrow, as shown in the diagram (fig. 2).

### C. Precautions in mounting the chip

1. Do not heat the chip beyond 3 seconds.
2. Do not rub the electrode.
3. Use tweezers to prevent any damage to the surface.
4. It is recommended that a pencil-type soldering iron be used.
5. Maintain temperature control under 260°C (500°F) when soldering.  
\* Chip resistance (of not more than 100Ω) may vary greatly with the direction of mounting; therefore, mount the white side in the pattern side.
6. Do not re-use the tantalum capacitors or ceramic capacitors after removal (use new components).
7. Do not subject the components (chips) to excessive stress.



# MEASUREMENT AND ADJUSTMENT METHODS

## NOTES:

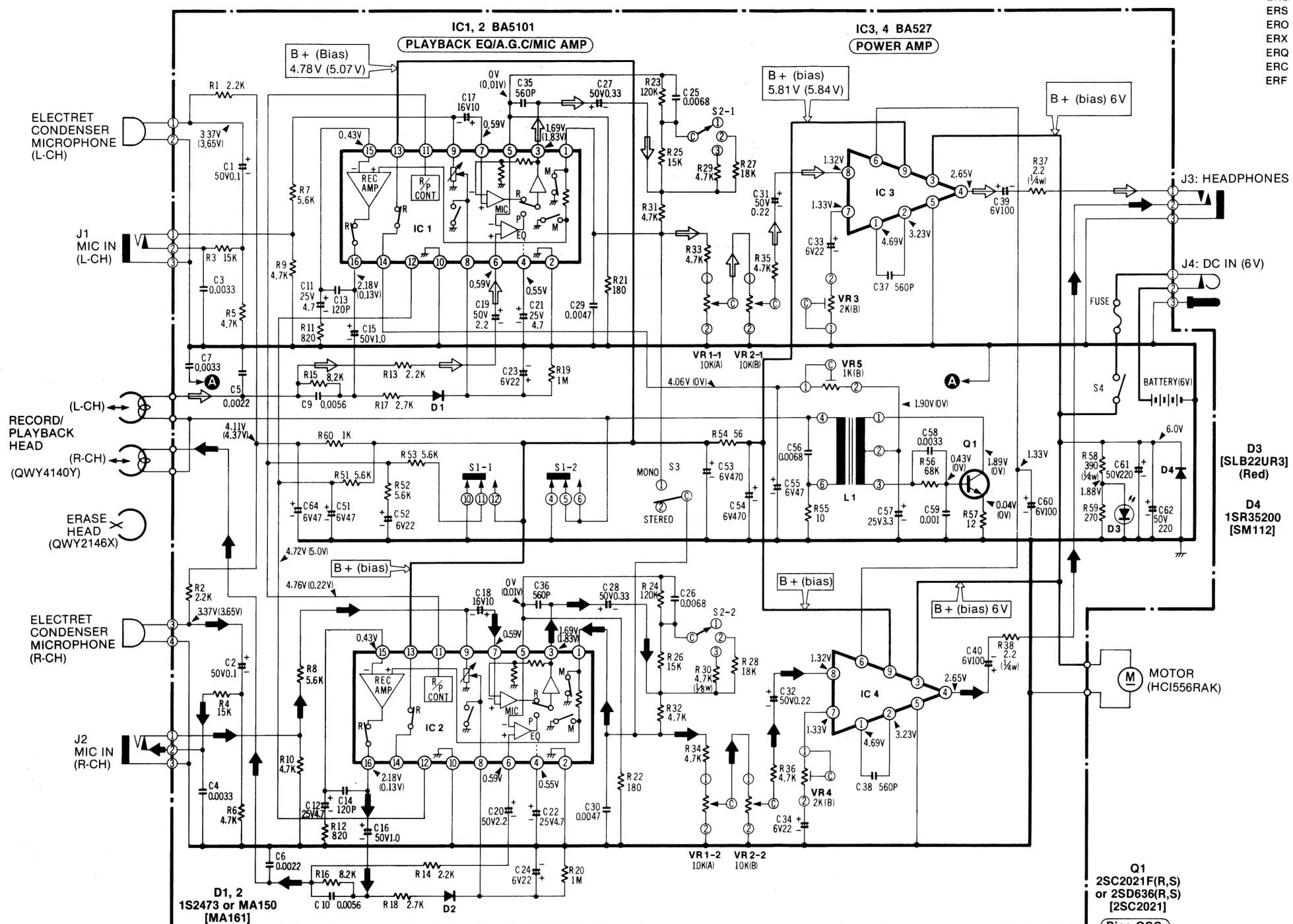
- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature:  $20 \pm 5^\circ\text{C}$  ( $68 \pm 9^\circ\text{F}$ )

- Playback equalizer/tone control switch: Normal H position
- Mode select switch: STEREO
- Balance control: "0" position

ITEM	MEASUREMENT & ADJUSTMENT
<b>Head azimuth adjustment</b> Condition: * Playback mode Equipment: * VTVM      * Oscilloscope * Test tape (azimuth) ... QZZCFM	<p><b>L-CH/R-CH output balance adjustment</b></p> <p>1. Make connections as shown in fig. 1 and 2.</p> <p>2. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (A) in fig. 3 for maximum output L-CH and R-CH levels. When the output levels of L-CH and R-CH are not at maximum at the same time, readjust as follows.</p> <p>3. Turn the screw shown in fig. 3 to find angles A and C (points where peak output levels for left and right channels are obtained). Then, locate the angle B between angles A and C, i.e., a point where L-CH and R-CH output levels come together at maximum. (Refer to figs. 3 and 4.)</p> <p><b>Fig. 1</b></p> <p><b>Fig. 2</b></p> <p><b>Fig. 3</b></p> <p><b>Fig. 4</b></p> <p><b>Fig. 5</b></p> <p><b>Fig. 6</b></p> <p><b>Fig. 7</b></p>
<b>Tape speed accuracy adjustment</b> Condition: * Playback mode Equipment: * Digital electronic counter or frequency counter * Test tape ... QZZCWAT	<p><b>Tape speed accuracy</b></p> <p>1. Test equipment connection is shown in fig. 2 and 7.</p> <p>2. Playback test tape (QZZCWAT 3,000Hz), and supply playback signal to frequency counter.</p> <p>3. Take measurement at middle section of test tape.</p> <p>4. Measure this frequency.</p> <p>5. On the basis of 3,000Hz, determine value by following formula:</p> $\text{Tape speed accuracy} = \frac{f - 3,000}{3,000} \times 100 (\%)$ <p>where, f = measured value</p> <p><b>Standard value: <math>\pm 2.5\%</math></b></p> <p>6. If measured value is not within standard, adjust tape speed adjustment VR (shown in electrical parts location), so that frequency becomes 3,000Hz.</p>

## SCHEMATIC DIAGRAM

A



## NOTES: RESISTORS

ERD ..... Carbon  
ERG ..... Metal-oxide  
ERS ..... Metal-oxide  
ERO ..... Metal-film  
ERX ..... Metal-film  
ERQ ..... Fuse type metallic  
ERC ..... Solid  
ERF ..... Cement

## CAPACITORS

ECBA ..... Ceramic  
ECG ..... Ceramic  
ECK ..... Ceramic  
ECC ..... Ceramic  
ECF ..... Ceramic  
ECQM ..... Polyester film  
ECQE ..... Polyester film  
ECQF ..... Polypropylene  
ECED ..... Ceramic  
ECEON ..... Non polar electrolytic  
ECQS ..... Polystyrene  
ECS ..... Tantalum  
QCS ..... Tantalum  
CHIP RESISTORS  
RRD ..... Carbon  
CHIP CAPACITORS  
QCU ..... Ceramic  
ECSE ..... Tantalum

## REPLACEMENT PARTS LIST

Ref. No.	Part No.	Ref. No.	Part No.
<b>RESISTORS</b>			
R1, 2	RRD18XJ222	C1, 2	ECEA1HK01
R3, 4	RRD18XJ153	C3, 4	QCUT1H332KRL
R5, 6	RRD18XJ472	C5, 6	QCUT1H222KRL
R7	RRD18XJ562	C7	QCUT1H332MRL
R8	ERD10TJ562	C9, 10	QCUT1H562KRL
R9, 10	RRD18XJ472	C11, 12	ECEA1EK4R7
R11	RRD18XJ821	C13, 14	QCUT1H121KCL
R12	ERD10TJ821	C15, 16	ECEA1HK010
R13, 14	RRD18XJ222	C17, 18	ECEA1CK100
R15	RRD18XJ822	C19, 20	ECEA1HK2R2
R16	ERD10TJ822	C21, 22	ECEA1EK4R7
R17	ERD10TJ272	C23, 24	ECEA0JK220
R18	RRD18XJ272	C25, 26	QCUT1H682KRL
R19, 20	RRD18XJ105	C27, 28	ECEA1HKR33
R21, 22	RRD18XJ181	C29, 30	QCUT1H472KRL
R23	ERD10TJ124	C31, 32	ECEA1HKR22
R24	RRD18XJ124	C33, 34	ECEA0JK220
R25, 26	RRD18XJ153	C35, 36, 37, 38	QCUT1H561MRL
R27, 28	RRD18XJ183	R29	RRD18XJ472
D3	[SLB22UR3] (Red)	C39, 40	ECEA0JK101
D4	1SR35200 [SM112]	C51	ECEA0JK470
R30, 31	ERD10TJ472	C52	ECEA0JK220
R32, 33, 34, 35, 36	RRD18XJ472	C53, 54	ECEA0JS471
R37, 38	ERD25FJ2R2	C55	ECEA0JK470
R51	ERD10TJ562	C56	ECFDD682KBL
R52, 53	RRD18XJ562	C57	ECEA1EKR33
R54	RRD18XJ560	C58	QCUT1H332KRL
R55	RRD18XJ100	C59	QCUT1H102KRL
R56	RRD18XJ683	C60	ECEA0JK101
R57	RRD18XJ120	C61	ECEA1HSS221
R58	ERD25FJ391	C62	ECEA0JK470
R59	ERD10TJ271	TRANSISTOR	Q1 2SC2021
R60	RRD18XJ102	DIODES	D1, 2 MA161 D3 SLB22UR3 D4 SM112
<b>CHIP JUMPERS</b>			
JP1, 2, 3	RRD18XK000	VARIABLE RESISTORS	VR1 EVUCAAT65A14 VR2 EVUCBAT65679 VR3, 4 EVNB3AA00B23 VR5 EVNB3AA00B13
<b>INTEGRATED CIRCUITS</b>			
IC1, 2	BA5101	IC2, 2	BA5101
IC3, 4	BA527	IC3, 4	BA527

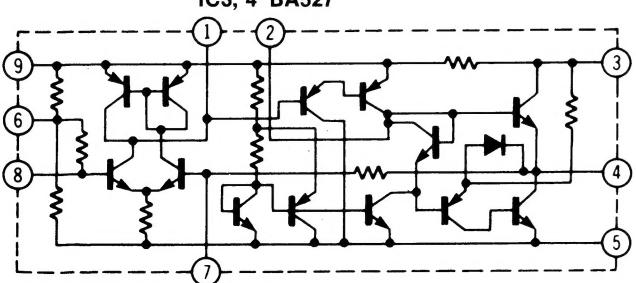
Ref. No.	Part No.	Part Name & Description
<b>COIL</b>		
L1	QLB0196K	Bias Oscillation Coil
<b>SWITCHES</b>		
S1	QSS4219	Slide Switch (Record/Playback Selector)
S2	QSS2310	Slide Switch (Playback Equalizer/Tone Control)
S3	QSS1229	Slide Switch (Stereo/Mono Selector)
S4	QSB0255	Leaf Switch (Power ON/OFF Switch)
<b>JACKS</b>		
J1, 2	QJA0184	Microphone Jack
J3	QJA0017	Jack Board Assembly (with Stereo Headphones Jack)
J4	QJA0177	DC IN Jack

## SPECIFICATIONS

Bias oscillation frequency	35±5 kHz
Standard recording input level	1 kHz: -72±4 dB MIC: -
Overall frequency response	150 Hz: -3±5 dB 1 kHz: 0 dB 6 kHz: -2±6 dB

## EQUIVALENT CIRCUIT

IC3, 4 BA527



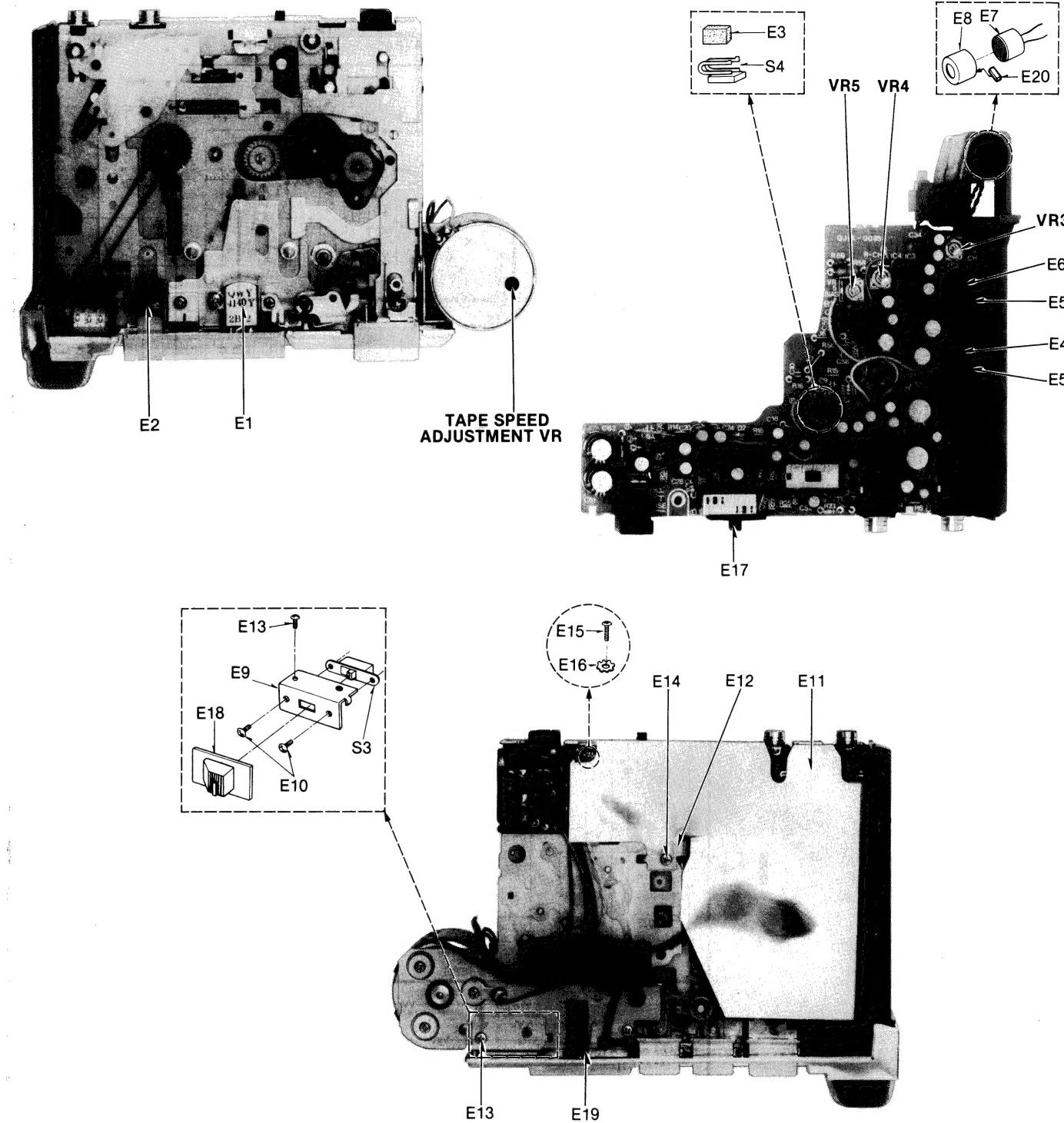
## NOTES:

- S1-1, S1-2 ..... Record/playback select switch (shown in playback position).
- S2-1—S2-2 ..... Tape select switch (shown in NORMAL-Hi position).
  - ①...Normal-Hi
  - ②...Normal-Low & Metal-Hi
  - ③...Metal-Low
- S3 ..... Mode select switch (shown in STEREO position).
  - (①)...STEREO, (②)...MONO
- S4 ..... Power ON/OFF switch (shown in OFF position).
- VR1-1, 1-2 ..... Volume control.
- VR2-1, 2-2 ..... Balance control.
- VR3, 4 ..... Playback gain adjustment VR.
- VR5 ..... Bias current adjustment VR.
- Resistance are in ohms ( $\Omega$ ), 1/8 watt unless specified otherwise.  
1 K = 1000 $\Omega$ , 1 M = 1000 K $\Omega$ .
- Capacity are in microfarads ( $\mu F$ ) unless specified otherwise.  
P = Pico-farads.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position.  
However, the voltage in playback mode is indicated in ( ) when it differs from that in record mode.  
For measurement, use VTVM.

- (→) this arrow indicates the flow of the playback signal.
- (←) this arrow indicates the flow of the recording signal.
- Described in the schematic diagram are two types of numbers; the supply parts number and production parts number for transistors and diodes. One type of number is used for supply parts number and production parts number when they are identical.
- e.g. Q1  
2SC2021F(R,S) — Production parts number  
or 2SD636(R,S)  
[2SC2021] — Supply parts number
- D4  
1S2473 — Production parts number  
or MA150  
[MA161] — Supply parts number
- The supply parts number is described alone in the replacement parts list.
- This schematic diagram may be modified at any time with the development of new technology.

ITEM	MEASUREMENT & ADJUSTMENT											
<b>Playback frequency response</b> Condition: * Playback mode Equipment: * VTVM      * Oscilloscope * Test tape ... QZZCFM	<ol style="list-style-type: none"> <li>Test equipment connections is shown in fig. 1 and 2.</li> <li>Playback frequency response test tape (QZZCFM).</li> <li>Measure output level at 315Hz, 125Hz, 1kHz, 4kHz, 8kHz and compare each output level with standard frequency 315Hz, at the headphones jack.</li> <li>Make measurement for both channels.</li> <li>Make sure that the measured value is within the range specified in the frequency response table (shown in fig. 8).</li> </ol>	<b>Playback frequency response table</b> <table border="1"> <tr> <td>125Hz</td><td><math>-2 \pm 4</math> dB</td></tr> <tr> <td>315Hz</td><td>0 dB</td></tr> <tr> <td>1 kHz</td><td><math>0 \pm 4</math> dB</td></tr> <tr> <td>4 kHz</td><td><math>-1.0 \pm 4</math> dB</td></tr> <tr> <td>8 kHz</td><td><math>-1.5 \pm 5</math> dB</td></tr> </table>	125Hz	$-2 \pm 4$ dB	315Hz	0 dB	1 kHz	$0 \pm 4$ dB	4 kHz	$-1.0 \pm 4$ dB	8 kHz	$-1.5 \pm 5$ dB
125Hz	$-2 \pm 4$ dB											
315Hz	0 dB											
1 kHz	$0 \pm 4$ dB											
4 kHz	$-1.0 \pm 4$ dB											
8 kHz	$-1.5 \pm 5$ dB											
<b>Playback gain</b> Condition: * Playback mode * Volume control: MAX * Balance control: "0" position Equipment: * VTVM      * Oscilloscope * Test tape ... QZZCFM	<ol style="list-style-type: none"> <li>Test equipment connection is shown in fig. 1 and 2.</li> <li>Playback standard recording level portion on test tape (QZZCFM 315Hz, 0 dB), and using VTVM measure the output level at the headphones jack.</li> <li>Make measurement for both channels.</li> </ol> <p><b>Standard value: around 0.68V</b></p> <p><b>Adjustment</b>  If measured value is not standard, adjust VR3 (L-CH), VR4 (R-CH) (shown in electrical parts location).</p>											
<b>Bias current adjustment</b> Condition: * Record mode Equipment: * VTVM * Oscilloscope	<ol style="list-style-type: none"> <li>Test equipment connection is shown in fig. 9.</li> <li>Place the unit into the record mode.</li> <li>Read voltage on VTVM and calculate bias current by the following formula:</li> </ol> $\text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10 (\Omega)}$ <p><b>Standard value: around 0.75mA</b></p> <ol style="list-style-type: none"> <li>If measured value is not within standard value, make adjustment by turning VR5.</li> </ol>											

## **ELECTRICAL PARTS LOCATION**



## REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
<b>ELECTRICAL PARTS</b>					
E1	QWY4140Y	Record/Playback Head	E10	XSN2+3	Screw $\frac{1}{4}$ 2x3
E2	QWY2146X	Erase Head	E11	QTSAA018	Shield Plate
E3	QBMA0014	Cushion-B	E12	QMA4354	P.B Holding Angle
E4	QGT1596	Volume Knob	E13	XQN2C3FN	Screw $\frac{1}{4}$ 2x3
E5	XQN17B28FZ	Screw $\frac{1}{4}$ 2.7x2.8	E14	XQN2C6FN	Screw $\frac{1}{4}$ 2x6
E6	QGT1597	Balance Volume Knob	E15	XSN2+4	Screw $\frac{1}{4}$ 2x4
E7	WM034AZ	Electret Condenser Microphone	E16	XWC2B	Washer 2 $\phi$
E8	QBG1725	Microphone Rubber	E17	QKJA0042	Switch Shelter
E9	QMA4445	Switch Angle	E18	QGT1595	Mode Select Knob
			E19	QBMA0016	Cushion
			E20	QBMA0014	Cushion-B

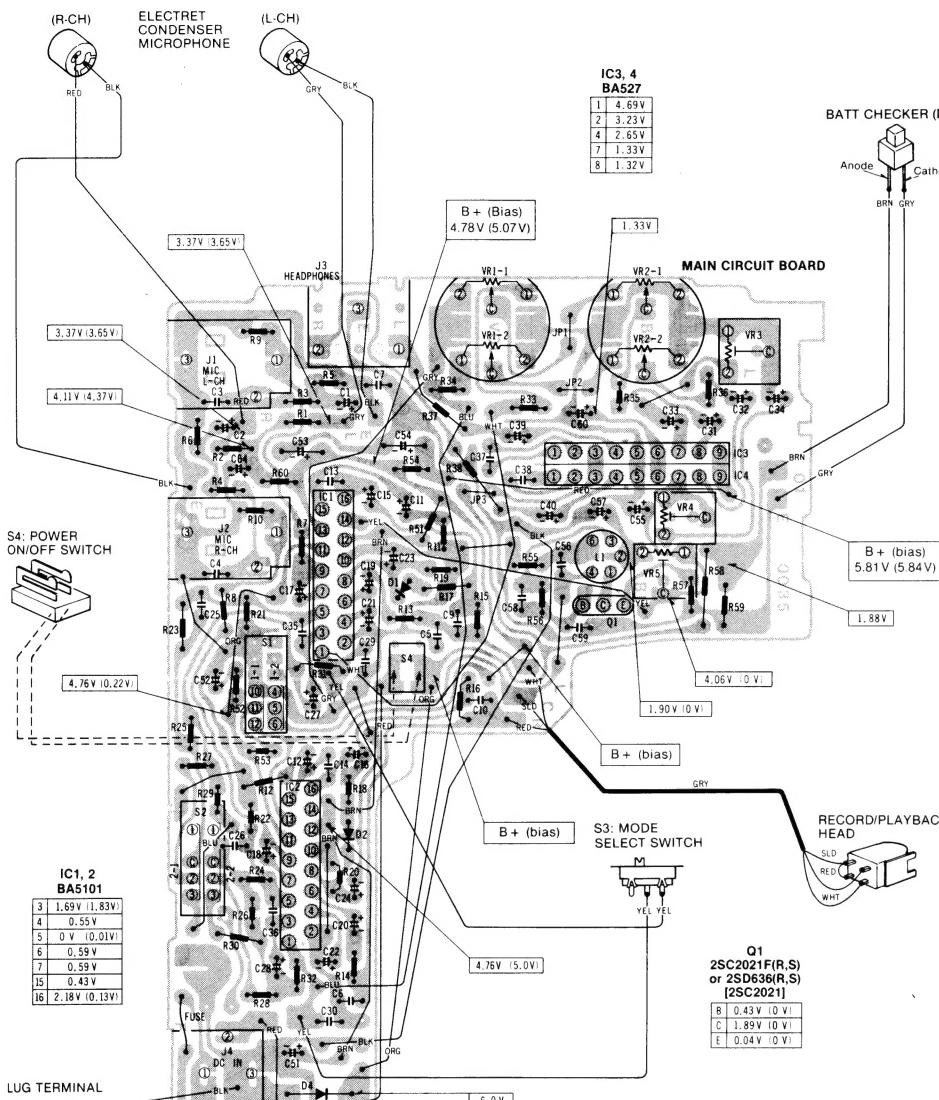
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3

2

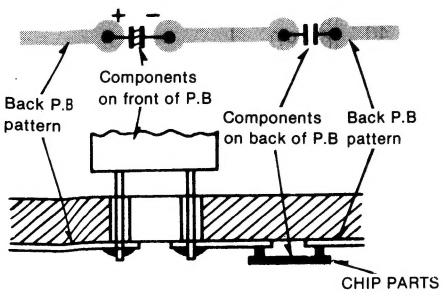
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## CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



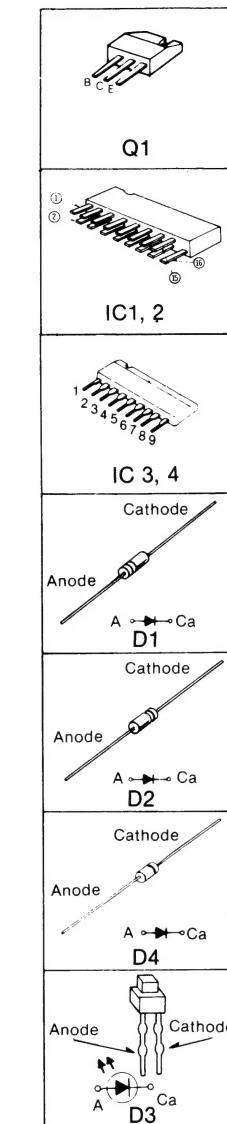
**NOTES:**

- BLK ..... Black
- BLU ..... Blue
- BRN ..... Brown
- GRY ..... Gray
- GRN ... Green
- L.BLU ... Light Blue
- NIL .... No Color Mark
- ORG ... Orange
- PNK ..... Pink
- RED ..... Red
- SLD .... Shield Wire
- VLT ..... Violet
- WHT..... White
- YEL ..... Yellow

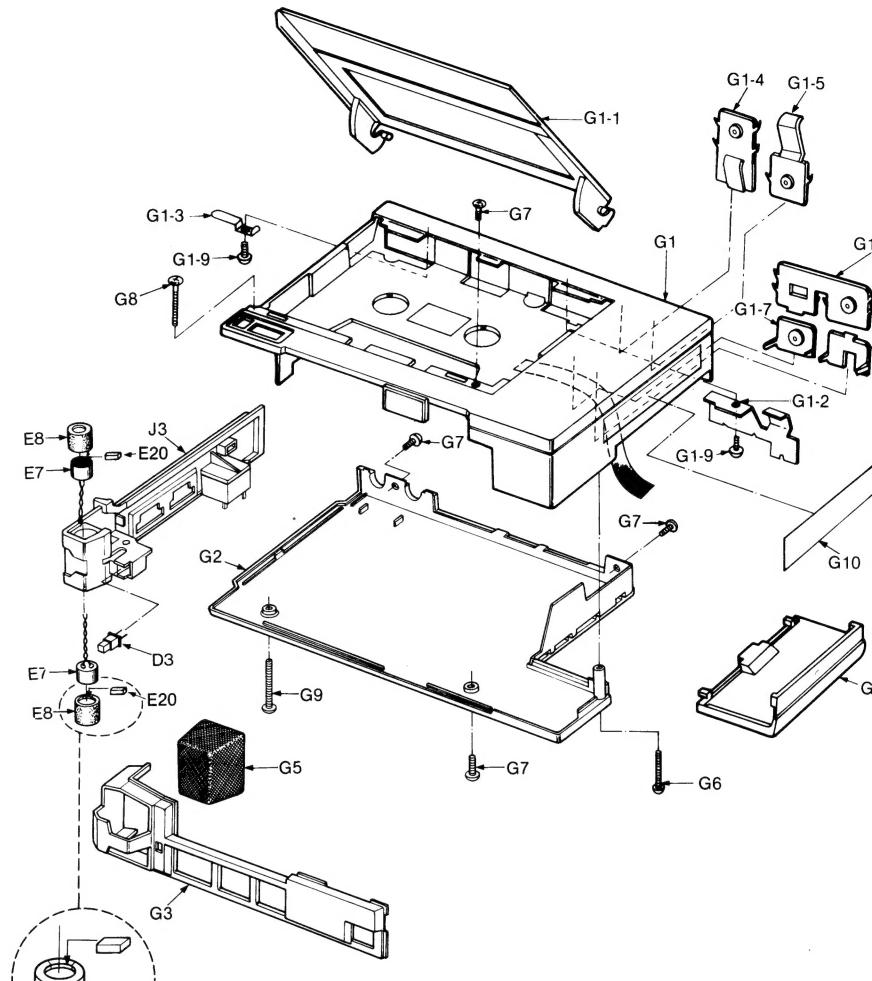
**NOTES:**

- This circuit shown in [ ] on the conductor indicates printed circuit on the back side of the printed circuit board (chip side).
- Components on front of P.B are identified by black symbols.
- Components on back of P.B are identified by red symbols.
- Values indicated in [ ] are under no signal condition and record mode with volume control at minimum position. However, the voltage in playback mode is indicated in ( ) when it differs from that in record mode. For measurement, use VTVM.
- Described in the circuit board diagram are two type of numbers; the supply parts number and production parts number for transistor.
- One type of number is used for supply parts number and production parts number when the are identical.
- e.g. Q1, 2
  - 2SC2412F(R,S) — Production parts number
  - { 2SC636(R,S) — Supply parts number
- The supply parts number is described alone in the replacement parts list.
- This circuit board diagram may be modified at any time with the development of new technology.

## TERMINATIONS

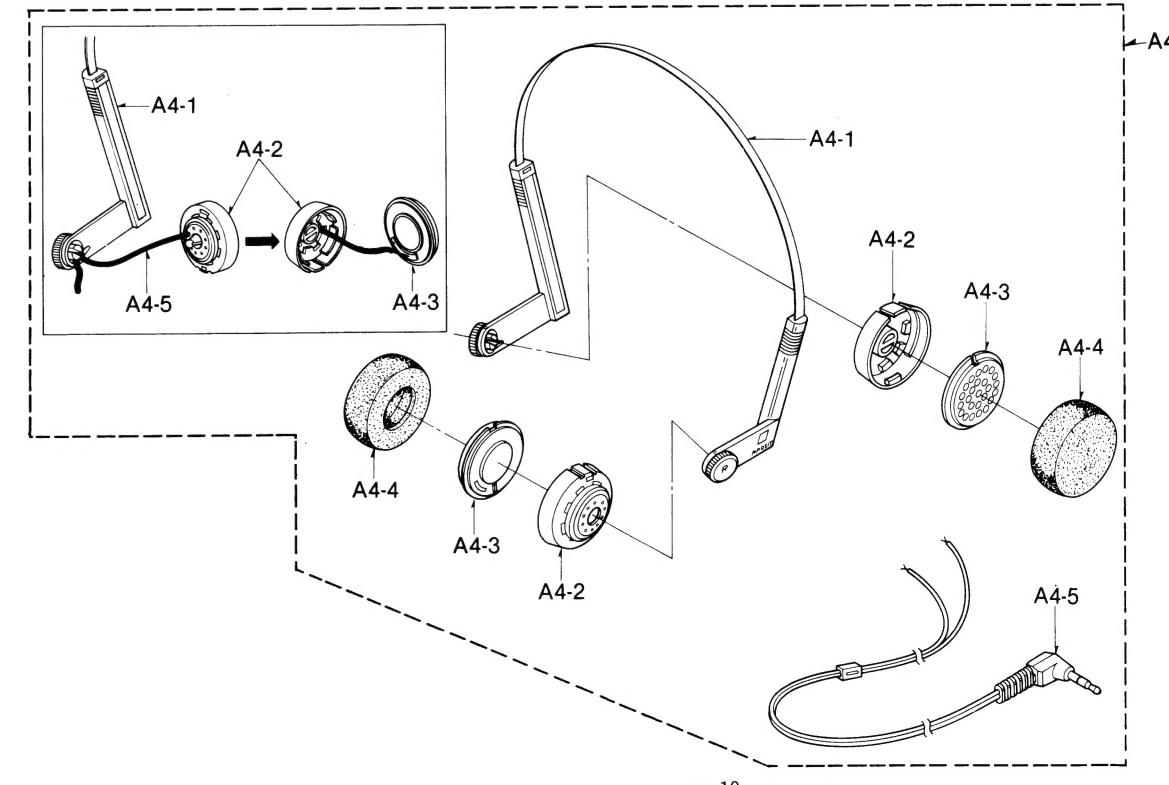


## CABINET PARTS LOCATION



## REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description
<b>CABINET PARTS</b>		
G1	QYMA0178H	Main Case Assembly
G1-1	QYFA0039H	Cassette Lid Assembly
G1-2	QBP1941	Cassette Lid Spring
G1-3	QMA4462	Cassette Lid Holding Angle
G1-4	QJB0152	Battery Terminal-A
G1-5	QJB0153	Battery Terminal-B
G1-6	QJB0154	Battery Terminal-C
G1-7	QJB0155	Battery Terminal-D
G1-8	QJB0156	Battery Terminal-E
G1-9	XTN2+6BFZ	Tapping Screw +2x6
G2	QYMA0175H	Bottom Case Assembly
G3	QGP0009	Front Panel
G4	QFK4001H1	Battery Cover
G5	QGKA0111	Microphone Net
G6	XTS2+20BFZ	Tapping Screw +2x20
G7	XSN2+6BV	Screw +2x6
G8	XSN2+14	Screw +2x14
G9	XSN2+18	Screw +2x18
G10	QGSA0078	Main Name Plate
<b>ACCESSORIES</b>		
A1	QQT3305	Instruction Book
A2	QJP0959	Erase Plug
A3	QFKA0065	Carring Bag
A4	RP9517XP	Stereo Headphones Assembly
A4-1	QYQ0310	Headphone: Band Assembly
A4-2	QKJ0530	Housing
A4-3	QYM0772	Speaker Assembly
A4-4	QBM1309	Ear Pad
A4-5	QEBO156	Headphones Cord
A5	QZC0015	Shoulder Belt
<b>PACKINGS</b>		
P1	QPNA0160	Inside Carton
P2	QPAA0080	Cushion
P3	XZB16X27A02	Poly Bag (for UNIT)
P4	QPAA0081	Pad

HEADPHONES PARTS LOCATION  
A4: Stereo Headphones Ass'y (RP9517XP)

# MECHANICAL PARTS LOCATION

(Front View)

